CLAIMS

What is claimed as new and desired to be protected by Letters Patent of the United States is:

1. A network interface for use in interfacing a subnetwork to a main network to allow transmission of information signals between the subnetwork and the main network, the interface comprising:

a plurality of interface switches establishing connections for information signals transmitted between the subnetwork and the main network;

first and second routers, each router being independently coupled to respective ones of said interface switches, said first and second routers determining the interconnecting transmission path for information signals to be transmitted between the subnetwork and the main network; and

a plurality of permanent virtual circuits (PVCs) defining dedicated logical transmission paths from each of said first and second routers to each node in the main network through at least one of said plurality of interface switches.

2. The network interface as recited in claim 1, wherein only a single routing hop is performed when transmitting information signals between a router at an external access point in the main network and one of said first and second routers in the network interface.

3. The network interface as recited in claim 2, wherein the main network is an asynchronous transfer mode (ATM) switched network having a plurality of nodes in the form of routers controlling transmission of the information signals through a plurality of ATM switches as the information signals are transmitted between the subnetwork and an external access point of the main network.

4. The network interface as recited in claim 3, wherein the ATM switched network is an Internet backbone and the subnetwork is an Ethernet-based local area network (LAN) having a world wide web server.

5. The network interface as recited in claim 4, wherein said plurality of interface switches include at least two ATM switches.

6. The network interface as recited in claim 5, wherein the information signals are data signals in the form of digital packets.

7. The network interface as recited in claim 4, further comprising a plurality of edge devices, each edge device being coupled to the subnetwork, said edge devices performing a LAN-to-ATM conversion function to permit applications to run transparently on the subnetwork over the ATM switched network.

8. The network interface as recited in claim 7, wherein said plurality of edge devices include at least two catalyst switches.

9. The network interface as recited in claim 2, wherein said first router processes, as an active router, a first portion of the information signals representing approximately one half of the information signals handled by the network interface, and said first router processes, as a stand-by router, a second portion of the information signals representing a remainder of the information signals not processed by said first router; and wherein said first router, as a stand-by router, only processes the second portion of the information signals if said second router fails.

10. The network interface as recited in claim 9, wherein said second router processes, as an active router, the second portion of the information signals representing a remainder of the information signals not processed by said second router, and said second router processes, as a stand-by router, the first portion of the information signals handled by the network interface, wherein said second router, as a stand-by router, only processes the first portion of the information signals if said first router fails.

11. The network interface as recited in claim 2, wherein if one of said interface switches fails, both said first and second routers determine the interconnecting transmission path for subsequent information signals using PVCs that bypass the failed interface switch.

12. The network interface as recited in claim 2, further comprising:

a dual-ring fiber distributed data interface (FDDI) fiber optic network transmitting peripheral information signals between a peripheral subnetwork and the main network;

third and fourth routers designating transmission paths through said FDDI network in transit between the peripheral subnetwork and the main network; and

at least one extension router controlling interconnection of said interface switches and said FDDI network.

13. A resilient interface architecture comprising:

at least two interface switches providing connectivity between a subnetwork and a main network, wherein, if one of said switches fails, the connectivity otherwise provided by the failed interface switch is provided by another one of said interface switches; and

at least two interface routers, each interface router individually coupled to at least one interface switch, said interface routers selecting a transmission path between the subnetwork and the main network through said interface switches, wherein, if one of said interface routers fails, the selection of transmission paths otherwise provided by the failed interface router is provided by another one of said interface routers.

14. The resilient interface architecture of claim 13, further comprising at least two network communication links transporting information signals between the interface architecture and the main network, wherein, if one of said network communication links fails, another one of the network communication links transports the information signals that would otherwise be transported by the failed communication link.

15. The resilient interface architecture of claim 14, wherein said network communication links include two optical connection communication links.

16. The resilient interface architecture of claim 14, further comprising:

a plurality of peripheral network communication links transporting peripheral information signals between a peripheral subnetwork and the main network;

a dual-ring fiber distributed data interface (FDDI) fiber optic network transporting the peripheral information signals between the peripheral subnetwork and the main network;

at least two FDDI routers designating transmission paths for the peripheral information signals through said FDDI network in transit between the peripheral subnetwork and the main network; and

at least two extension routers controlling interconnection of said interface switches and said FDDI network.

17. The resilient interface architecture of claim 16, wherein, if said at least two network communication links fail, said interface routers select transmission paths through said peripheral communications links and said FDDI network to transport information signals between the subnetwork and the main network.

18. The resilient interface architecture of claim 13, further comprising a plurality of permanent virtual circuits (PVCs) defining dedicated logical transmission paths from each of said interface routers to each node in the main network through at least one of said interface switches.

19. The resilient interface architecture of claim 18, wherein each node of the main network is a signal router designating transmission paths for information signals transported through the main network; and wherein each of said interface routers are fully meshed with the signal routers in the main network.

20. The resilient interface architecture of claim 13, wherein the subnetwork is a server local area network, the main network is an asynchronous transfer mode (ATM) switched network, and the information signals are streaming audio and video signals.

21. A high resiliency network infrastructure for use in hosting information services on the Internet, the network infrastructure comprising:

an Internet backbone transporting Internet data between Internet access points, the Internet backbone comprising:

a plurality of first physical links upon which the Internet data traverses said Internet backbone on route between Internet access points;

a plurality of first asynchronous transfer mode (ATM) switches, connecting respective ones of said first physical links, directing the Internet data from one of said first physical links to another of said first physical links on route between Internet access points; and

a plurality of Internet routers, each coupled to at least one of said first ATM switches, selecting data paths composed of ones of said first physical links and said first ATM switches upon which the Internet data traverses across said Internet backbone;

a hosting network based on an open system interconnect (OSI) stack protocol, for transporting Internet data between an access point on said Internet backbone and a customer subnetwork, which provides redundancy at a physical interface layer, a data link layer, and a network layer of the OSI stack protocol, said hosting network comprising:

a plurality of mutually redundant second physical links upon which the Internet data traverses said hosting network on route between an Internet access point and the customer subnetwork;

a plurality of mutually redundant second ATM switches, connecting respective ones of said second physical links, directing the Internet data from one of said second physical links to another of said second physical links on route between an Internet access point and the customer subnetwork; and

a plurality of mutually redundant hosting routers, each coupled to at least one of said second ATM switches, selecting data paths composed of ones of said second physical links and said second ATM switches upon which the Internet data traverses across said hosting network, wherein each of said hosting routers is fully meshed with said Internet routers.

22. The high resiliency network infrastructure recited in claim 21, wherein:

said plurality of mutually redundant second physical links includes at least two optical fiber communication links transporting information signals between said hosting network and said Internet backbone, wherein, if one of said optical fiber communication links fails, another one of the optical fiber communication links transports the information signals that would otherwise be transported by the failed optical fiber communication link;

said plurality of mutually redundant second ATM switches includes at least two ATM interface switches providing connectivity between a customer subnetwork and said Internet backbone, wherein, if one of said ATM interface switches fails, the connectivity otherwise provided by the failed ATM interface switch is provided by another one of said ATM interface switches; and

said plurality of mutually redundant hosting routers includes at least two interface routers, each interface router individually coupled to at least one ATM interface switch, said interface routers selecting a transmission path between the customer subnetwork and the Internet backbone through said ATM interface switches, wherein, if one of said interface routers fails, the selection of transmission paths otherwise provided by the failed interface router is provided by another one of said interface routers.

23. The high resiliency network infrastructure recited in claim 21, further comprising:

a plurality of permanent virtual circuits (PVCs) defining dedicated logical transmission paths from each of said hosting routers to each Internet router in said Internet backbone through at least one of said plurality of first ATM switches; and

wherein only a single routing hop is performed when transporting information signals between one of said Internet routers at an external access point in said Internet backbone and one of said hosting routers in said hosting network.

24. A method of interfacing a subnetwork to a main network to allow transmission of information signals between the subnetwork and the main network, the method comprising the steps of:

establishing connections with a plurality of interface switches for transporting information signals between the subnetwork and the main network;

independently coupling to each of the interface switches first and second routers;

determining the interconnecting transmission path for information signals to be transported between the subnetwork and the main network; and

defining dedicated logical transmission paths from each of the first and second routers to each node in the main network through at least one of the plurality of interface switches.

25. The method as recited in claim 24, further comprising the step of performing only a single routing hop when transmitting information signals between a router at an external access point in the main network and one of the first and second routers, and wherein the dedicated logical transmission paths defined in said defining step are made of permanent virtual circuits (PVCs).

26. The method as recited in claim 25, wherein the main network is an asynchronous transfer mode (ATM) switched network having a plurality of nodes in the form of routers, the method further comprising the step of controlling transmission of the information signals through a plurality of ATM switches as the information signals are transmitted between the subnetwork and an external access point of the main network.

27. The method as recited in claim 26, wherein the ATM switched network is an Internet backbone and the subnetwork is a Token Ring-based local area network (LAN) having a ftp file access server.

28. The method as recited in claim 27, further comprising the step of performing a LAN-to-ATM conversion function to permit applications to run transparently on the subnetwork over the ATM switched network.

29. The method as recited in claim 25, further comprising the steps of:

using the first router as an active router, processing a first portion of the information signals representing approximately one half of the information signals transported between the subnetwork and the main network;

using the first router as a stand-by router, monitoring a second portion of the information signals representing a remainder of the information signals not processed by the first router; and

if the second router fails, processing, using the first router as an active router, the second portion of the information signals.

30. The method as recited in claim 29, further comprising the steps of:

using the second router as an active router, processing the second portion of the information signals transported between the subnetwork and the main network;

using the second router as a stand-by router, monitoring the first portion of the information signals representing a remainder of the information signals not processed by the second router; and

if the first router fails, processing, using the second router as an active router, the first portion of the information signals.

31. The method as recited in claim 25, further comprising the step of, if one of the interface switches fails, determining the interconnecting transmission path for subsequent information signals using PVCs that bypass the failed interface switch.

32. The method as recited in claim 25, further comprising the steps of:

transmitting peripheral information signals between a peripheral subnetwork and the main network using a dual-ring fiber distributed data interface (FDDI) fiber optic network;

designating transmission paths through the FDDI network in transit between the peripheral subnetwork and the main network using third and fourth routers; and

controlling interconnection of the interface switches and the FDDI network using at least one extension router.

33. A resilient interface method:

providing connectivity between a subnetwork and a main network with at least two interface switches;

providing, if one of the switches fails, the connectivity otherwise provided by the failed interface switch by another one of the interface switches;

individually coupling to at least one interface switch at least two interface routers; and

selecting a transmission path between the subnetwork and the main network through the interface switches, wherein, if one of the interface routers fails, the selection of transmission paths otherwise provided by the failed interface router is provided by another one of the interface routers.

34. The resilient interface method as recited in claim 33, further comprising the steps of:

transporting information signals between the subnetwork and the main network using at least two network communication links; and

transporting, if one of the network communication links fails, the information signals that would otherwise be transported by the failed communication link.

35. The resilient interface method as recited in 34, wherein the network communication links include two optical connection communication links.

36. The resilient interface method of claim 34, further comprising:

transporting peripheral information signals using a plurality of peripheral network communication links between a peripheral subnetwork and the main network;

transporting the peripheral information signals between the peripheral subnetwork and the main network using a dual-ring fiber distributed data interface (FDDI) fiber optic network;

designating transmission paths using at least two FDDI routers for the peripheral information signals through the FDDI network in transit between the peripheral subnetwork and the main network; and

controlling interconnection of the interface switches and the FDDI network using at least two extension routers.

37. The resilient interface method as recited in claim 33, further comprising the step of defining dedicated logical transmission paths from each of the interface routers to each node in the main network through at least one of the interface switches using a plurality of permanent virtual circuits (PVCs).

38. The resilient interface method as recited in 37, further comprising the steps of:

designating transmission paths for information signals transported through the main network, wherein each node of the main network is a signal router; and

fully meshing each of the interface routers with the signal routers in the main network.

39. A method of verifying the operation of a network interface which interfaces a subnetwork and a main network comprising the steps of:

providing a test environment for verifying the operation of the network interface;

transmitting a test signal from a first location simulating a communication between the subnetwork and main network;

receiving the test signal at a second location;

introducing at least one fault condition into the test environment; and

observing an effect upon the transmitted test signal as a result of introducing the fault into the test environment.

40. The method as recited in claim 39, wherein said providing step further comprises:

providing a main network;

providing a subnetwork;

providing a plurality of interface switches and a plurality of interface routers; and

using the plurality of interface switches and the plurality of interface routers to interface from said subnetwork to said main network.

41. The method as recited in claim 40, wherein said main network is an asynchronous transfer mode (ATM) switched network.

42. The method as recited in claim 41, wherein said main network is comprised of at least one ATM switched Emulated Local Area Network (ELAN) running LAN Emulation (LANE) services.

43. The method as recited in claim 40, wherein the subnetwork includes at least one customer connection.

44. The method as recited in claim 40, wherein the plurality of interface switches and routers includes a plurality of edge devices.

45. The method as recited in claim 44, wherein the plurality of edge devices includes at least two catalyst switches.

46. The method as recited in claim 40, wherein the plurality of interface switches includes at least two ATM switches.

47. The method as recited in claim 40, wherein the plurality of interface routers includes at least two routers.

48. The method as recited in claim 40, wherein said using step further requires selecting a LANE protocol to provide redundant LANE services from an optimum location within said test environment.

49. The method as recited in claim 48, wherein the selected LANE protocol is Simple Server Redundancy Protocol (SSRP).

50. The method as recited in claim 48, wherein the LANE protocol is run on the plurality of catalyst switches.

51. The method as recited in claim 40, wherein said using step further requires coupling each of said routers to at least one of said ATM switches and, wherein, said using step further requires coupling each of said ATM switches to each of said edge devices, said edge devices performing a LAN-to-ATM conversion function to permit applications to run transparently on said subnetwork over the ATM switched network.

52. The method as recited in claim 39, wherein said simulating step includes establishing at least one ELAN and configuring at least one LANE client for each ELAN.

53. The method as recited in claim 39, wherein said fault condition affects a switch.

54. The method as recited in claim 39, wherein said fault condition affects a router.

55. A method of verifying the operation of a resilient interface architecture, said architecture comprising at least two interface switches providing connectivity between a subnetwork and a main network, wherein, if one of said switches fails, the connectivity otherwise provided by the failed interface switch is provided by another of said interface switches, said architecture also comprising at least two interface routers, each interface router individually coupled to at least one of said interface switches, said interface routers selecting a transmission path between said subnetwork and said main network through said interface switches, wherein, if one of said interface routers fails, the selection of transmission paths otherwise provided by the failed interface router is provided by another one of said interface routers, the method comprising the steps of:

providing a test environment which comprises a subnetwork, said subnetwork comprising at least one customer connection, said subnetwork being coupled to at least two edge devices, said edge devices comprising at least two mutually redundant catalyst switches, said edge devices being coupled to at least two mutually redundant ATM switches, said ATM switches coupled to at least two mutually redundant interface routers, said routers coupled to an ATM switched main network;

simulating an actual loaded environment;

transmitting a test signal from a first location within said test environment, said test signal being received, after a time delay, at a second location within said test environment;

introducing a plurality of fault conditions into said test environment, said fault conditions occurring one at a time, wherein a currently occurring fault is corrected before a next fault is introduced into said test environment; and

observing and recording an effect, on the time delay, upon introducing said fault conditions into said test environment, and observing and recording an effect, on the time delay, upon correcting each of said fault conditions before introducing a next fault condition of said plurality of fault conditions.

56. The method as recited in claim 55, wherein the mutually redundant catalyst switches provide connectivity between the subnetwork and the main network, wherein, if one of said catalyst switches fails, the test signal which would otherwise pass through the failed switch is passed through another one of said catalyst switches.

57. The method as recited in claim 55, wherein the mutually redundant ATM switches provide connectivity between the catalyst switches and the interface routers, wherein, if one of said ATM switches fails, the test signal which would otherwise pass through the failed ATM switch is passed through another of said ATM switches.

58. The method as recited in claim 55, wherein the mutually redundant routers provide connectivity between the ATM switches and the backbone, wherein, if one of said interface routers fails, the test signal which would otherwise pass through the failed interface router is passed through another one of said interface routers.

59. The method as recited in claim 55, wherein the subnetwork is a server local area network.

60. The method as recited in claim 55, wherein the main network is an ATM switched network.

61. The method as recited in claim 59, wherein the subnetwork is further comprised of a plurality of single connected customer networks and a plurality of double connected customer networks.

62. The method as recited in claim 59, wherein the subnetwork is further comprised of at least one single connected customer network.

63. The method as recited in claim 59, wherein the subnetwork is further comprised of at least one double connected customer network.

64. The method as recited in claim 55, wherein the fault condition is the removal of an interface within said test environment.

65. The method as recited in claim 55, wherein the fault condition is the disabling of a supervisor module.

66. The method as recited in claim 55, wherein the fault condition is a power failure.

67. The method as recited in claim 55, wherein the fault condition is the disabling of a LES/BUS pair or a LECS of a device.

68. A method of verifying the operation of a high resiliency network infrastructure for use in hosting information services on the Internet, said network infrastructure containing an Internet backbone, and a hosting network based upon an open system interconnect (OSI) stack protocol for transporting Internet data between an access point on said Internet backbone and a customer subnetwork, which provides redundancy at a physical interface layer, a data link layer, and a network layer of the OSI stack protocol, said Internet backbone containing a plurality of first physical links upon which the Internet data traverses said Internet backbone on route between Internet access points, and also containing a plurality of first asynchronous transfer mode (ATM) switches connecting respective ones of said physical links, directing the Internet data from one of said first physical links, to another of said first physical links on route between Internet access points, and also containing a plurality of Internet routers, each coupled to at least one of said ATM switches, selecting data paths composed of ones of said first physical links and said first ATM switches upon which the Internet data traverses across said Internet backbone, said hosting network containing a plurality of mutually redundant second physical links which includes at least two optical fiber communication links transporting information signals between said hosting network and said Internet backbone, wherein, if one of said optical fiber communication links fails, another one of the optical fiber communication links transports the information signals that would otherwise be transported by the failed optical fiber communication link, said hosting network also containing a plurality of mutually redundant second ATM switches which include at least two ATM interface switches providing connectivity between a customer subnetwork and said Internet backbone, wherein, if one of said ATM interface switches fails, the connectivity otherwise provided by the failed ATM interface switch is provided by another one of said ATM interface switches, and also containing a plurality of mutually redundant hosting routers which include at least two interface routers, each interface router individually coupled to at least one ATM interface switch, said interface routers selecting a transmission path between the customer subnetwork and the Internet backbone through said ATM interface switches, wherein, if one of said interface routers fails, the selection of transmission paths otherwise provided by the failed interface router is provided by another one of said interface routers, said network infrastructure also containing a plurality of permanent virtual circuits (PVCs) defining dedicated logical transmission paths from each of said hosting routers to each Internet router in said Internet backbone through at least one of said plurality of first ATM switches, and wherein, only a single routing hop is performed when transporting information signals between one of said Internet routers at an external

access point in said Internet backbone and one of said hosting routers in said hosting network, said method comprising the steps of:

providing a test environment to simulate customer connections, said test environment comprising a subnetwork level comprising a plurality of customer networks coupled to a catalyst switch level, said catalyst switch level comprising a plurality of catalyst switches coupled to an ATM switch level, said ATM switch level comprising a plurality of ATM switches coupled to a border router level, said border router level comprising a plurality of border routers coupled to an internal backbone level;

simulating actual load demands within said test environment by establishing a plurality of Emulated Local Area Networks (ELANs), each of said ELANs being coupled with a plurality of LAN Emulation clients, and establishing an Internet Protocol (IP) address for each of said ELANs;

transmitting a test signal from a first location within said test environment, said test signal being received, after a time delay, at a second location within said test environment;

introducing a series of fault conditions into said test environment, said fault conditions occurring one at a time, wherein a currently occurring fault condition is corrected before a next fault condition is introduced into said test environment, and, wherein, said fault conditions comprise the removal of an interface, the removal of a supervisor module within a device, disabling a LES/BUS pair on a device, disabling LECS on a device, and total or partial power failure of a device within said test environment; and

observing and recording an effect, on said time delay, upon introducing said fault condition into said test environment, and observing and recording an effect, on said time delay, upon correcting said fault condition before introducing next fault condition in said series of fault conditions.

69. The method as recited in claim 68, wherein said plurality of customer networks comprise a plurality of single connected customer networks and a plurality of double connected customer networks.

70. The method as recited in claim 69, wherein provisions are made to ensure transmission between a first of said plurality of customer networks and a second of said plurality of customer networks is routed through the backbone and not a third of said plurality of customer networks.

71. The method as recited in claim 68, wherein said subnetwork level comprises at least one customer network.

72. The method as recited in claim 68, wherein said plurality of catalyst switches includes at least one primary catalyst and at least one secondary catalyst, said primary and secondary catalyst switches being mutually redundant, wherein if one of said catalyst switches fails, another one of the catalyst switches transports said test signal that would otherwise be transported by the failed catalyst switch.

73. The method as recited in claim 68, wherein said plurality of ATM switches includes at least one primary ATM switch and at least one secondary ATM switch, said primary and secondary ATM switches being mutually redundant, wherein if one of said ATM switches fails, another one of the ATM switches transports said test signal that would otherwise be transported by the failed ATM switch.

74. The method as recited in claim 68, wherein said plurality of border routers includes at least one primary router and at least one secondary router, said primary and secondary routers being mutually redundant, wherein if one of said border routers fails, another one of the border routers will transport the test signal that would otherwise be transported by the failed router.

75. The method as recited in claim 74, wherein said border routers employ Hot Standby Routing Protocol (HSRP) and, wherein, said routers employ a shortest exit protocol.

76. The method as recited in claim 68, wherein said internal backbone is comprised of Internet Protocol (IP) subnetworks of fully meshed ATM PVCs.

77. The method as recited in claim 68, wherein said internal backbone is comprised of a plurality of ATM switched networks consisting of a plurality of ATM switched ELANs, each of said ELANs running LANE protocol.

78. The method as recited in claim 68, wherein each of said plurality of ELANs are coupled to ethernet ports of each of said plurality of catalyst switches.

79. The method as recited in claim 68, wherein at least one of said ELANs is coupled to the ethernet port of at least one of said catalyst switches.

80. The method as recited in claim 78, wherein at least one of said ELANs is coupled to the ethernet ports, via an ethernet hub, of at least two of said plurality of catalyst switches.

81. The method as recited in claim 78, wherein at least one of said ELANs is coupled to a processor-based system.

82. The method as recited in claim 68, wherein said test signal is transmitted from a processor-based device.

83. The method as recited in claim 82, wherein the processor-based device is coupled to a primary ATM switch via a border router, and, wherein, a switch bridges a backbone ELAN and an ethernet port of the border router.

84. The method as recited in claim 68, wherein the removed interface couples an ethernet hub to a primary catalyst switch.

85. The method as recited in claim 68, wherein the removed interface couples an ethernet hub to a secondary catalyst switch.

86. The method as recited in claim 68, wherein the removed interface couples a secondary catalyst switch to a primary ATM switch.

87. The method as recited in claim 68, wherein the removed interface couples a primary catalyst switch to a secondary ATM switch.

88. The method as recited in claim 68, wherein the removed interface couples a primary catalyst switch to a primary ATM switch.

89. The method as recited in claim 68, wherein the removed interface couples a secondary ATM switch to a secondary border router.

90. The method as recited in claim 68, wherein the removed interface couples a primary ATM switch to a primary border router.

91. The method as recited in claim 68, wherein the supervisor module within said primary catalyst switch is removed.

92. The method as recited in claim 68, wherein the power failure occurs within a catalyst switch.

93. The method as recited in claim 68, wherein the disabling of the LES/BUS pair occurs within a catalyst switch.

94. The method as recited in claim 68, wherein the disabling of the LECS occurs within a catalyst switch.

95. A method of adding a customer to a network infrastructure, the method comprising the steps of:

identifying a plurality of configuration parameters;

creating a new Virtual Local Area Network (VLAN);

configuring at least one catalyst switch and at least two routers; and

connecting the new customer to the network infrastructure.

96. The method as recited in claim 95, wherein said identifying step further comprises:

identifying an Internet Protocol (IP) prefix;

identifying a connection number;

identifying an Emulated Local Area Network (ELAN) name;

identifying a Virtual Local Area Network (VLAN) number;

acquiring access control lists;

identifying catalyst connection points; and

identifying router connection points.

97. The method as recited in claim 95, wherein said creating step further comprises creating a VLAN on each catalyst switch in the network infrastructure to which said added customer will be connected.

98. The method as recited in claim 95, wherein said connecting step further comprises connecting the customer to one primary catalyst switch and one secondary catalyst switch.

99. The method as recited in claim 95, wherein said connecting step further comprises connecting the customer to one primary router and one secondary router.

100. A method of adding a customer to a high resiliency network infrastructure for use in hosting information services on the Internet, said network infrastructure containing an Internet backbone, and a hosting network based upon an open system interconnect (OSI) stack protocol for transporting Internet data between an access point on said Internet backbone and a customer subnetwork, which provides redundancy at a physical interface layer, a data link layer, and a network layer of the OSI stack protocol, said Internet backbone containing a plurality of first physical links upon which Internet data traverses said Internet backbone on route between Internet access points, and also containing a plurality of first asynchronous transfer mode (ATM) switches connecting respective ones of said physical links, directing the Internet data from one of said first physical links, to another of said first physical links on route between Internet access points, and also containing a plurality of Internet routers, each coupled to at least one of said ATM switches, selecting data paths composed of ones of said first physical links and said first ATM switches upon which the Internet data traverses across said Internet backbone, said hosting network containing a plurality of mutually redundant second physical links which includes at least two optical fiber communication links transporting information signals between said hosting network and said Internet backbone, wherein, if one of said optical fiber communication links fails, another one of the optical fiber communication links transports the information signals that would otherwise be transported by the failed optical fiber communication link, said hosting network also containing a plurality of mutually redundant second ATM switches which include at least two ATM interface switches providing connectivity between a customer subnetwork and said Internet backbone, wherein, if one of said ATM interface switches fails, the connectivity otherwise provided by the failed ATM interface switch is provided by another one of said ATM interface switches, and also containing a plurality of mutually redundant hosting routers which include at least two interface routers, each interface router individually coupled to at least one ATM interface switch, said interface routers selecting a transmission path between the customer subnetwork and the Internet backbone through said ATM interface switches, wherein, if one of said interface routers fails, the selection of transmission paths otherwise provided by the failed interface router is provided by another one of said interface routers, said network infrastructure also containing a plurality of permanent virtual circuits (PVCs) defining dedicated logical transmission paths from each of said hosting routers to each Internet router in said Internet backbone through at least one of said plurality of first ATM switches, and wherein, only a single routing hop is performed when transporting information signals between one of said Internet routers at an external

access point in said Internet backbone and one of said hosting routers in said hosting network, the method comprising the steps of:

compiling a plurality of configuration parameters, said parameters comprising an Internet Protocol (IP) prefix, a connection number, an Emulated Local Are Network (ELAN) name, a Virtual Local Area Network (VLAN) number, an access control list, a plurality of catalyst connection points, and a plurality of router connection points;

creating a new VLAN on each catalyst switch to which said added customer will connect;

configuring at least one catalyst switch and at least two routers; and

connecting the customer to at least one catalyst switch and to at least two routers.

101. The method as recited in claim 100, wherein said creating step requires connection to one catalyst switch.

102. The method as recited in claim 101, wherein appropriate ports of the catalyst switch are assigned to the VLAN.

103. The method as recited in claim 101, wherein provisions are made to ensure the catalyst switch will be a root bridge for the VLAN.

104. The method as recited in claim 101, wherein a primary LES/BUS pair and a LEC on an ATM LANE module for the catalyst switch are configured.

105. The method as recited in claim 100, wherein said creating step requires connection to two catalyst switches.

106. The method as recited in claim 105, wherein appropriate ports of both catalyst switches are assigned to both VLANs.

107. The method as recited in claim 105, wherein provisions are made to ensure that a primary catalyst to which a first VLAN is connected is a root bridge, and a secondary catalyst to which a second VLAN is connected is a root bridge if the primary catalyst fails.

108. The method as recited in claim 105, wherein a primary and secondary LES/BUS pair and a primary and secondary LEC on an ATM LANE module of a primary catalyst and a secondary catalyst are configured.

109. The method as recited in claims 100 and 105, wherein said connecting step further comprises:

connecting to an ATM LANE module of a primary catalyst switch which acts as a primary LECS;

creating an entry in the LECS database for a new ELAN;

connecting to an ATM LANE module of a secondary catalyst switch which acts as a secondary LECS;

updating the LECS database with exactly the same configuration information as in the primary LECS;

connecting to an active router; and

connecting to a standby router.

110. The method as recited in claim 109, wherein said connecting to an active router step further comprises the substeps of:

configuring a named IP extended access list;

configuring an ATM sub-interface; and

configuring EIGRP.

111. The method as recited in claim 109, wherein said connecting to a standby router step further comprises the substeps of:

configuring a named IP extended access list which is identical to that used to configure said active router;

configuring an ATM sub-interface; and

configuring EIGRP.